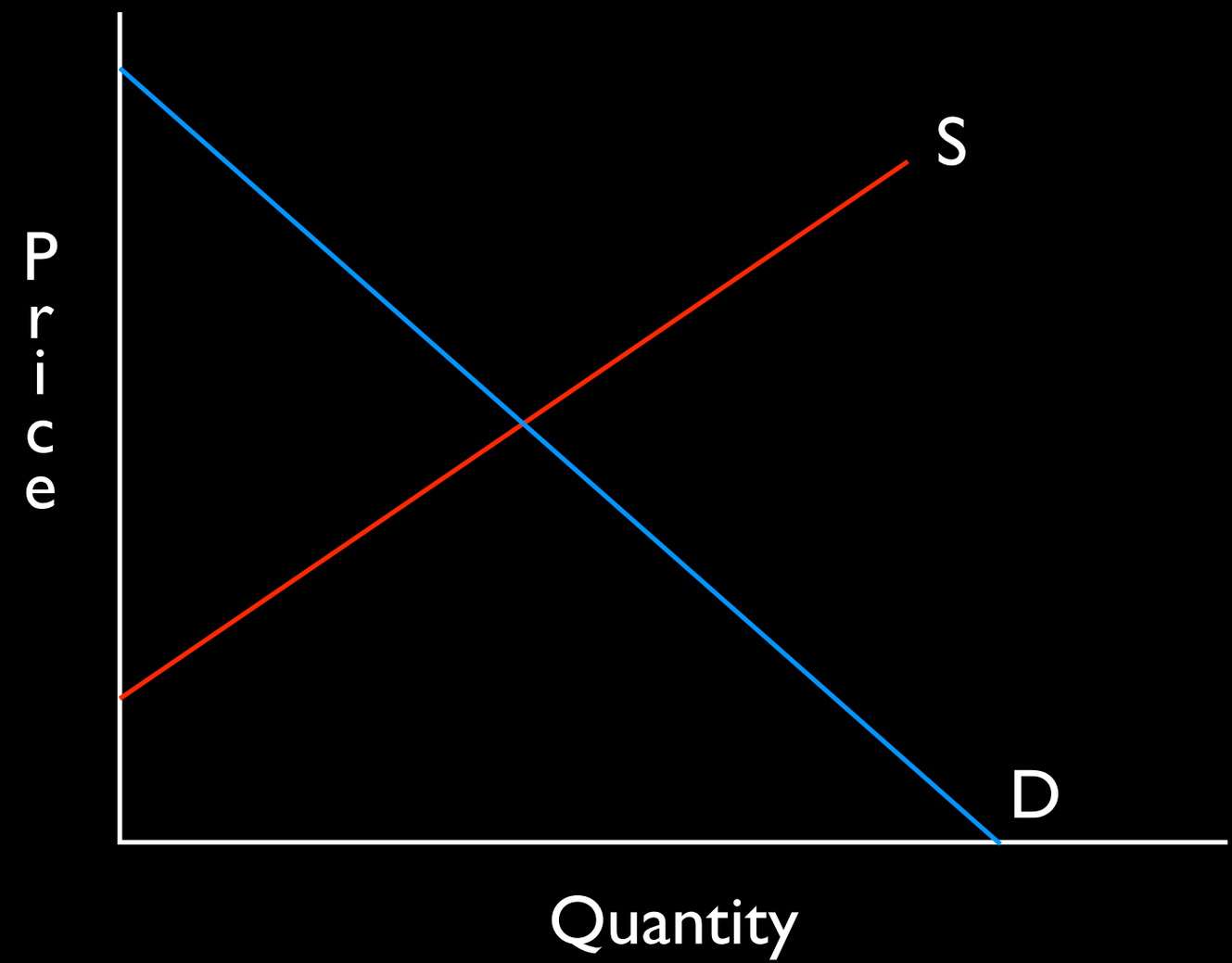
Funding Mechanisms for Biodiversity Conservation

Maya Kocian

Earth Economics

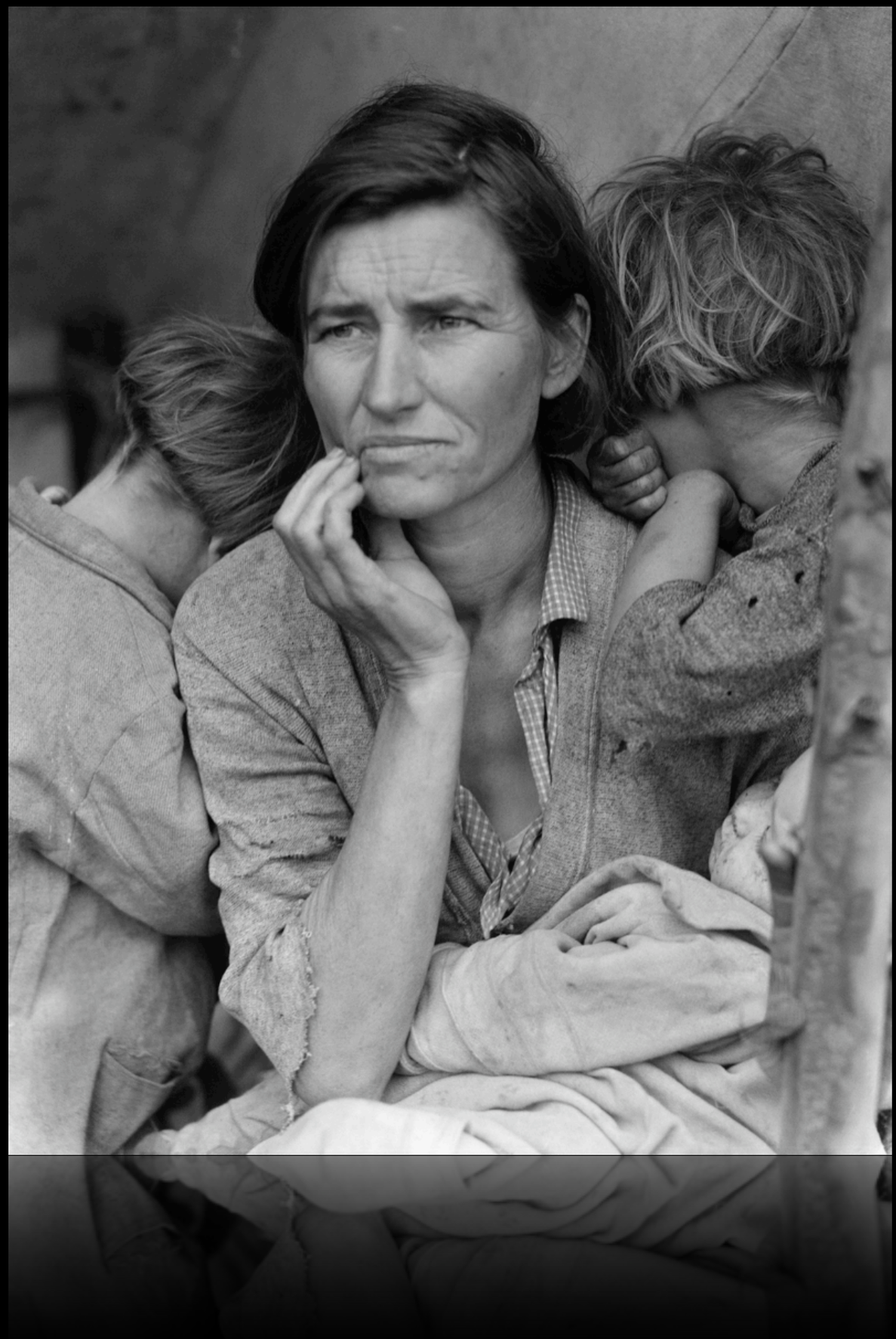
Microeconomics



Microeconomics

Macroeconomics

Microeconomics



Macroeconomics

Microeconomics

Eartheconomics

Macroeconomics

Microeconomics

Old View of the Economy

New View of the Economy

Four Types of Capital

Four Types of Capital

Built Capital

Four Types of Capital

Social Capital

Four Types of Capital

Human Capital

Four Types of Capital




Natural Capital

Food

Recreation

Carbon Sequestration

Pollination

Water Supply

Medicinal Resources

Regulation Functions

Regulation Functions

Climate

Gas

Disturbance

Water regulation

Water supply

Soil retention

Soil formation

Nutrient regulation

Waste treatment

Pollination

Biological Control

Habitat Functions

Habitat Functions

Refugium

Nursery

Production Functions

Production Functions

Food

Raw materials

Genetic resources

Medicinal resources

Ornamental resources

Information Functions

Information Functions

Aesthetic

Recreation

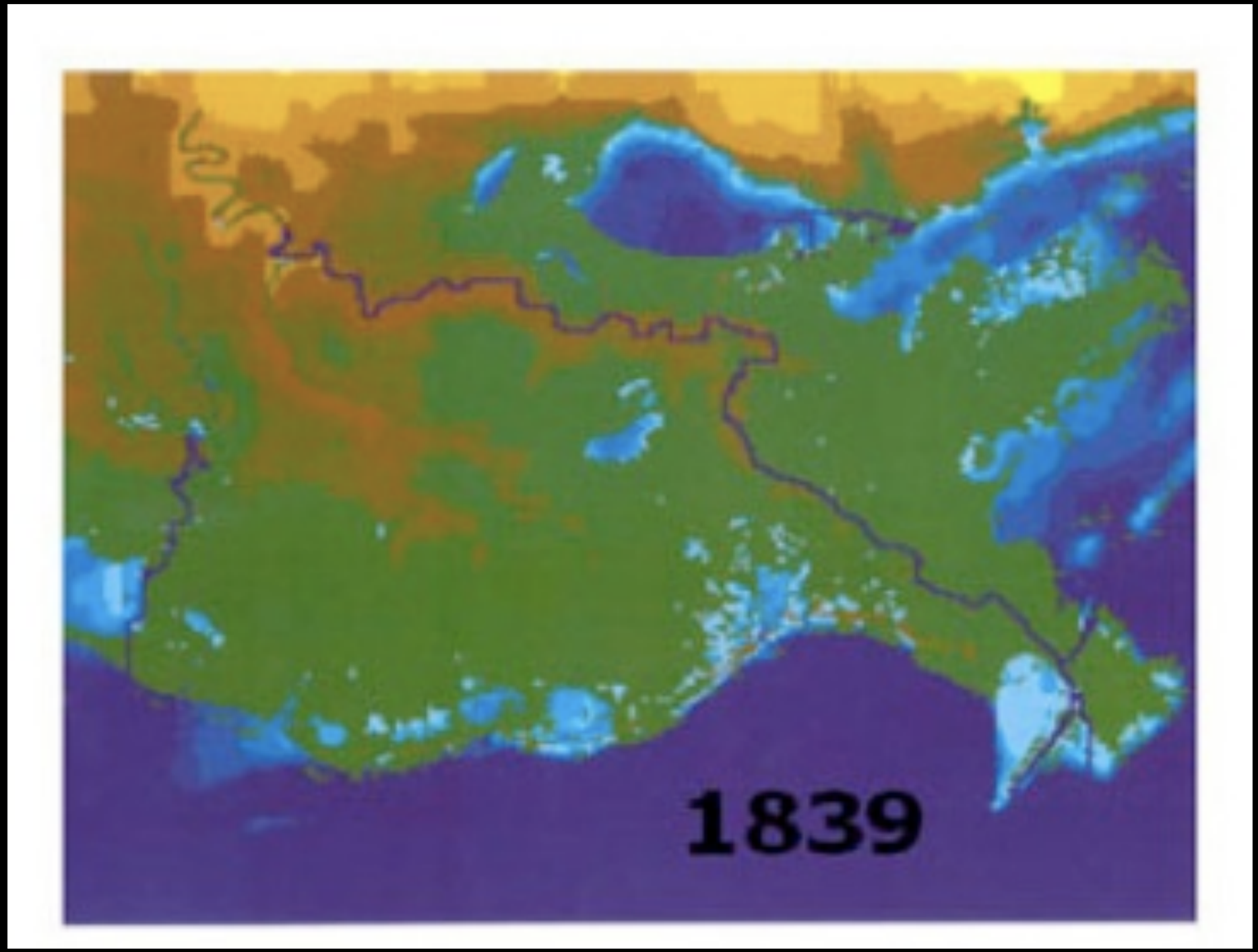
Cultural & artistic

Spiritual & historic

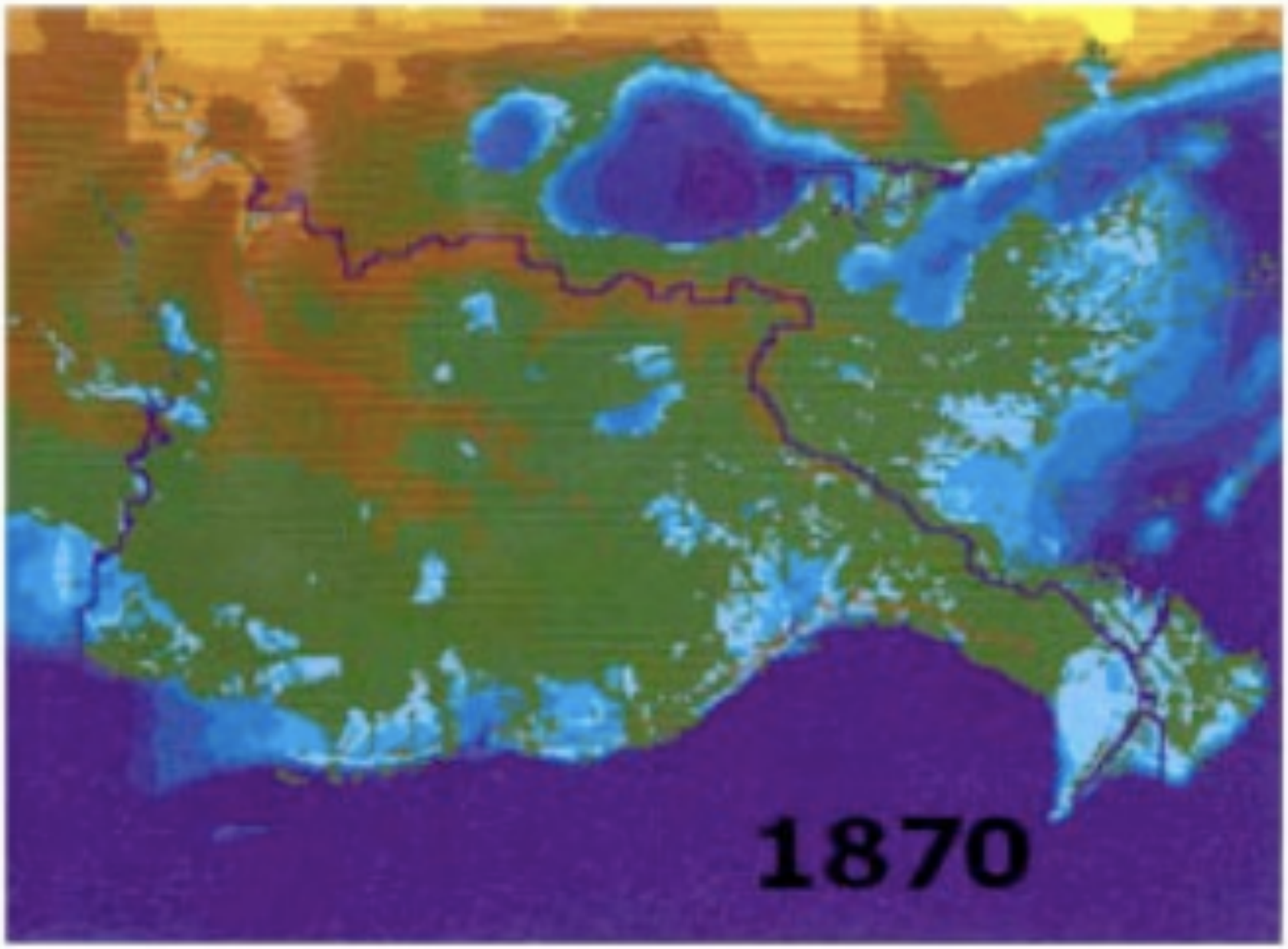
Science & education

Loss of Natural Capital

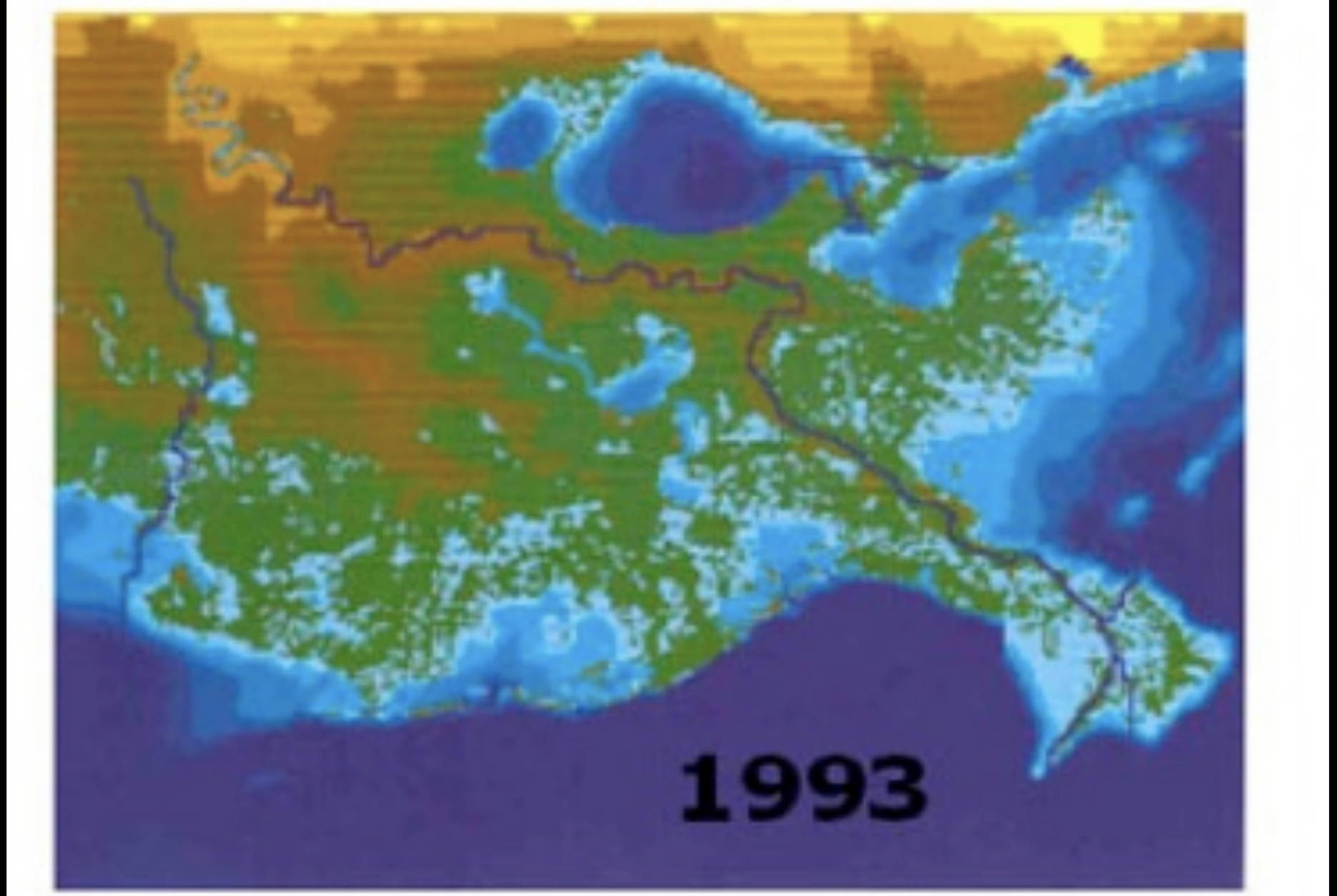
Loss of Natural Capital



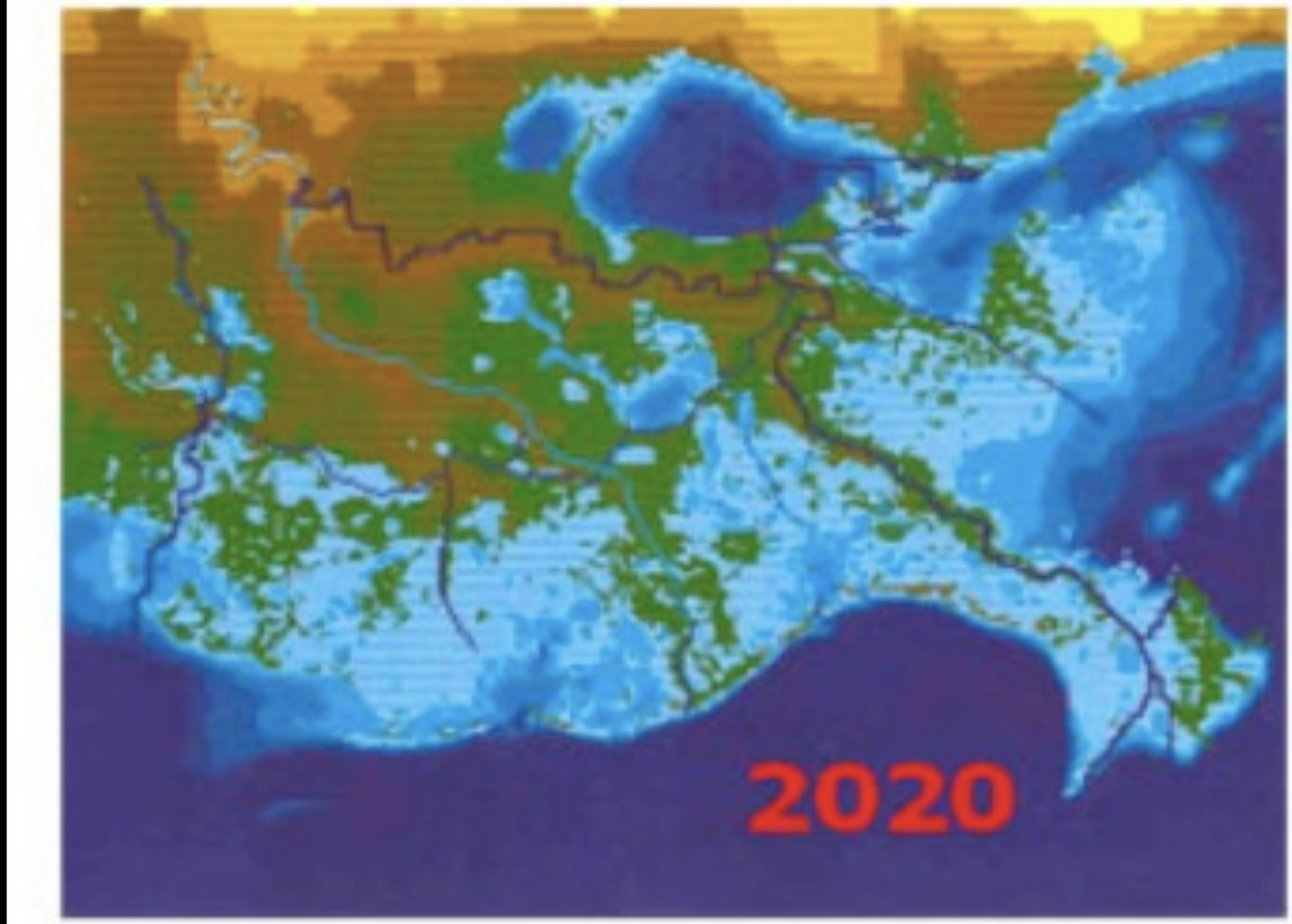
Loss of Natural Capital

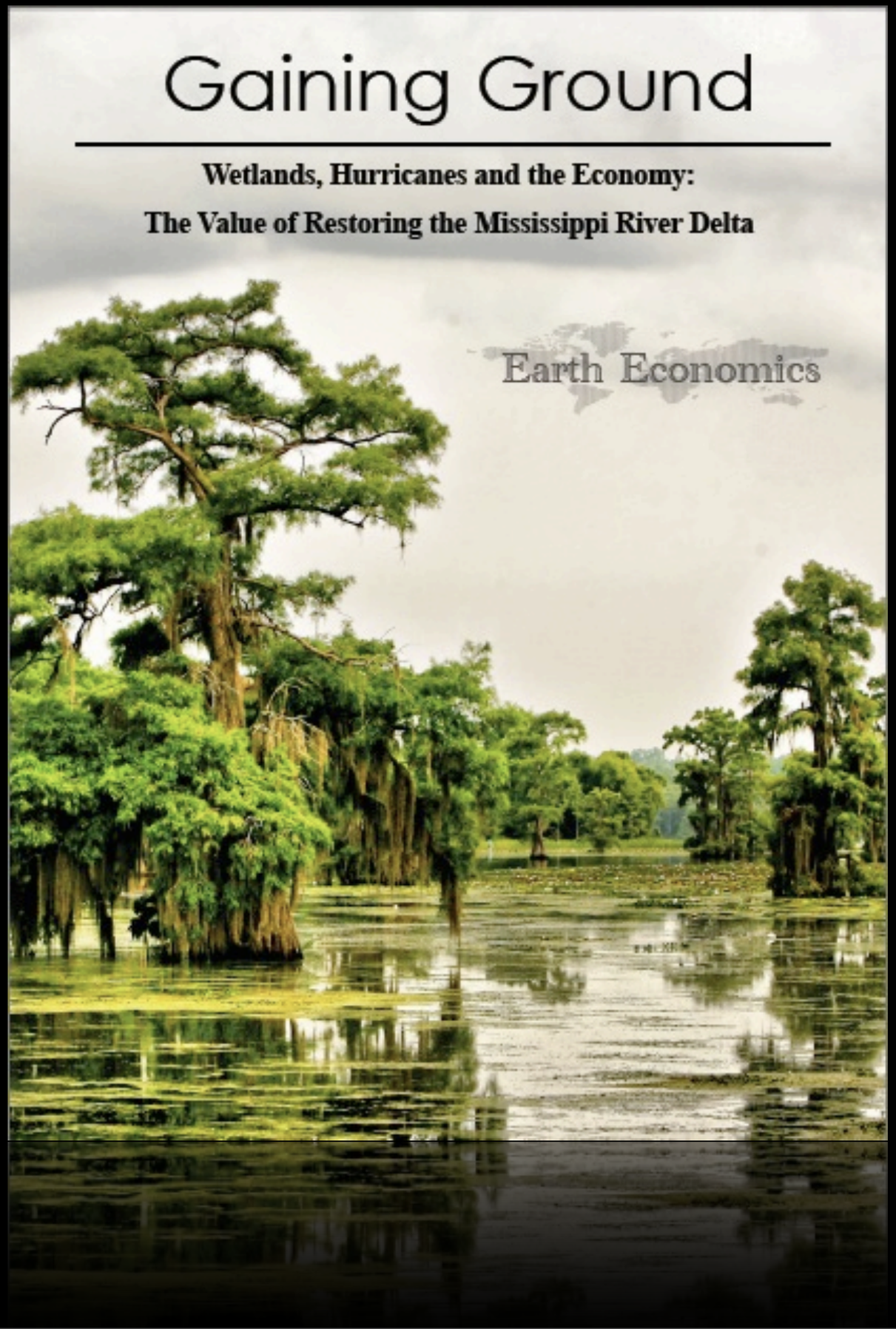


Loss of Natural Capital



Loss of Natural Capital





January 2009

Valuation Methods

Indirect Values

Avoided Cost

Replacement Cost

Travel Cost

Hedonic Pricing

Contingent Valuation

Group Valuation

Direct Values

Market Price

Principal services provided by forests:	Estimated value:
Climate regulation	$141/ha
Erosion control	$96/ha
Nutrient storage and recycling	$361/ha
Recreation	$66/ha
Other	$305/ha
Total	$969/ha

Source: Costanza 1997

Biome	Area (e6 ha)	Value per ha ($/ha/yr)	Global Flow Value (e12 $/yr)
Marine	**36,302**	**577**	**20.9**
Open Ocean	33,200	252	8.4
Coastal	3,102	4052	12.6
Estuaries	180	22832	4.1
Seagrass/Algae Beds	200	19004	3.8
Coral Reefs	62	6075	0.3
Shelf	2,660	1610	4.3
Terrestrial	**15,323**	**804**	**12.3**
Forest	4,855	969	4.7
Tropical	1,900	2007	3.8
Temperate/Boreal	2,955	302	0.9
Grass/Rangelands	3,898	232	0.9
Wetlands	330	14785	4.9
Tidal Marsh/Mangroves	165	9990	1.6
Swamps/Floodplains	165	19580	3.2
Lakes/Rivers	200	8498	1.7
Desert	1,925		
Tundra	743		
Ice/Rock	1,640		
Cropland	1,400	92	0.1
Urban	332		
Total	**51,625**		**33.3**

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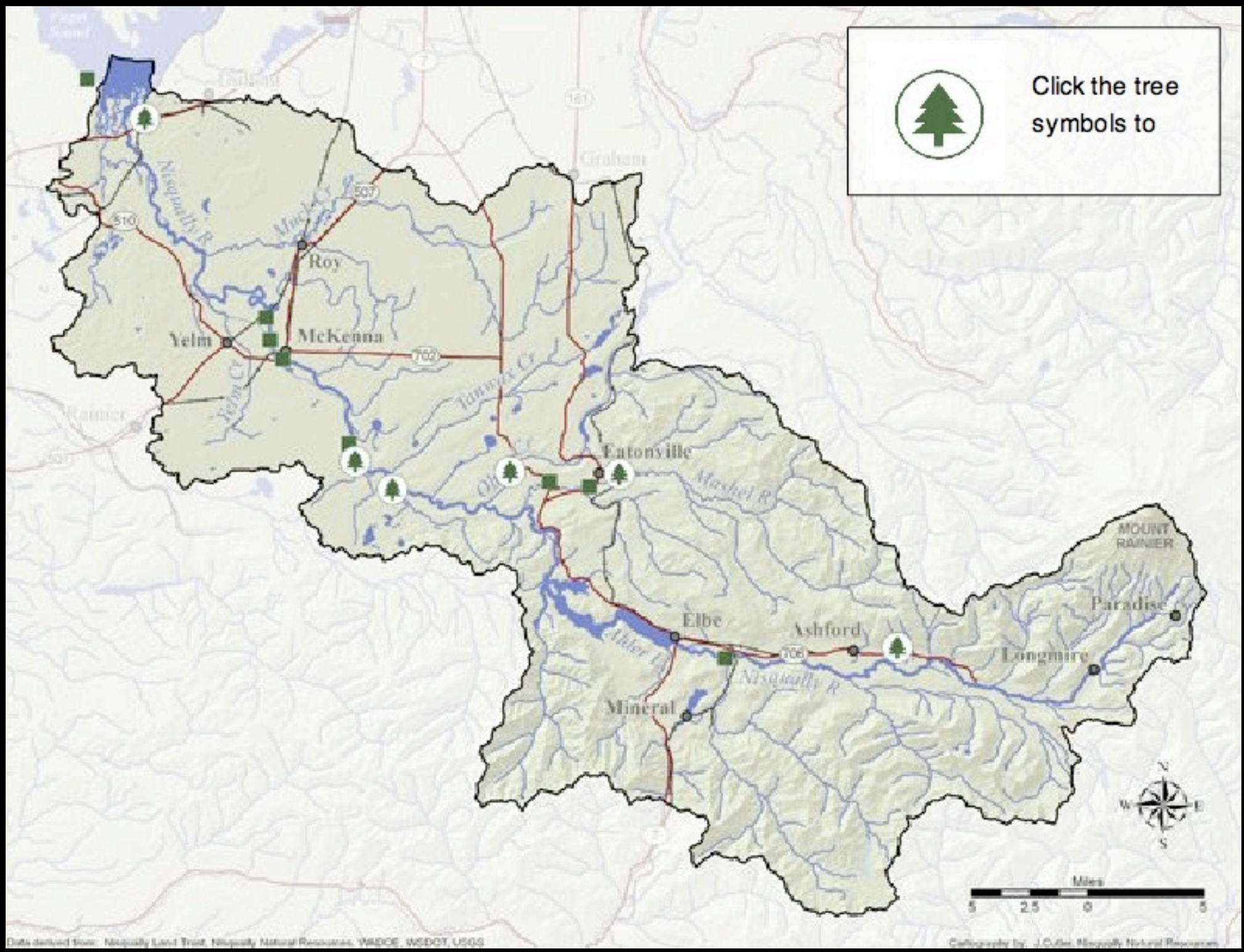
Ecosystem Services Analysis of the Nisqually Watershed



Source: Nisqually Land Trust

Report

Workshop

Fact sheets

- Department of Ecology
- Biodiversity Council
- Puget Sound Partnership
- Citizens and Elected Officials

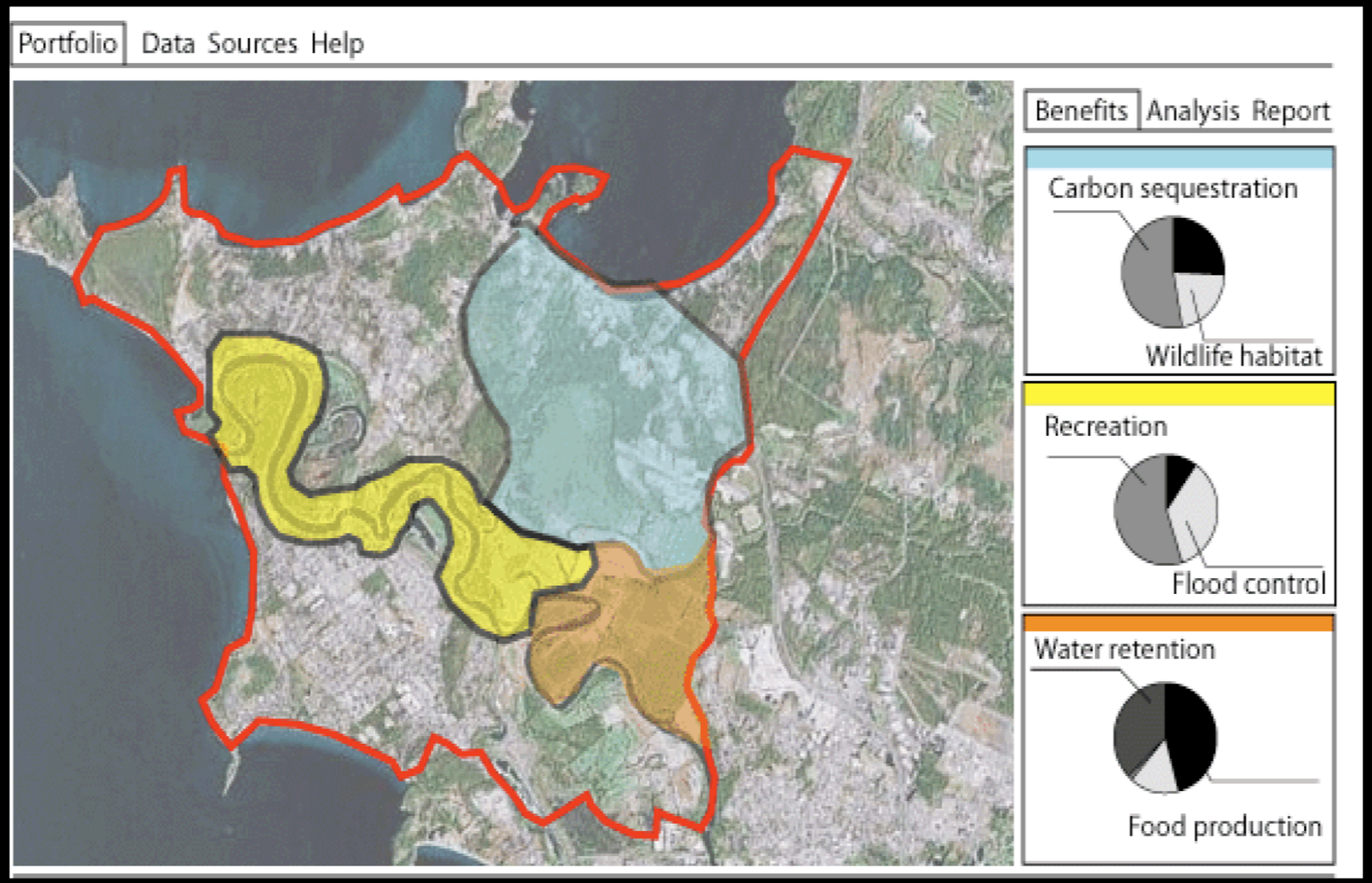
Market Mechanism

- Compliant Biodiversity Offsets
- Green Taxes
- Payment for Ecosystem Services (PES)

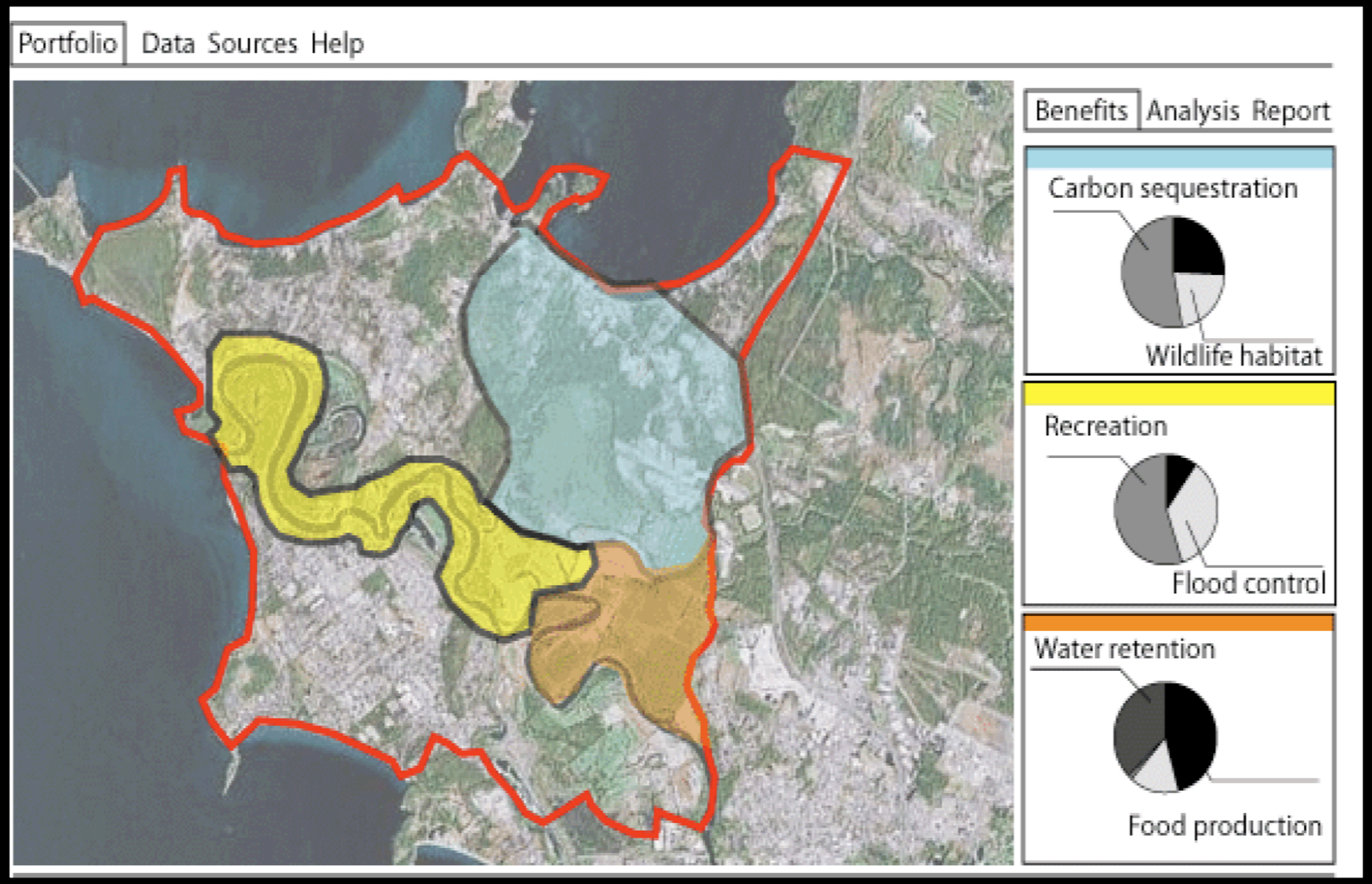
Auction Mechanism

Grants

ARIES
ARtificial Intelligence for Ecosystem Services

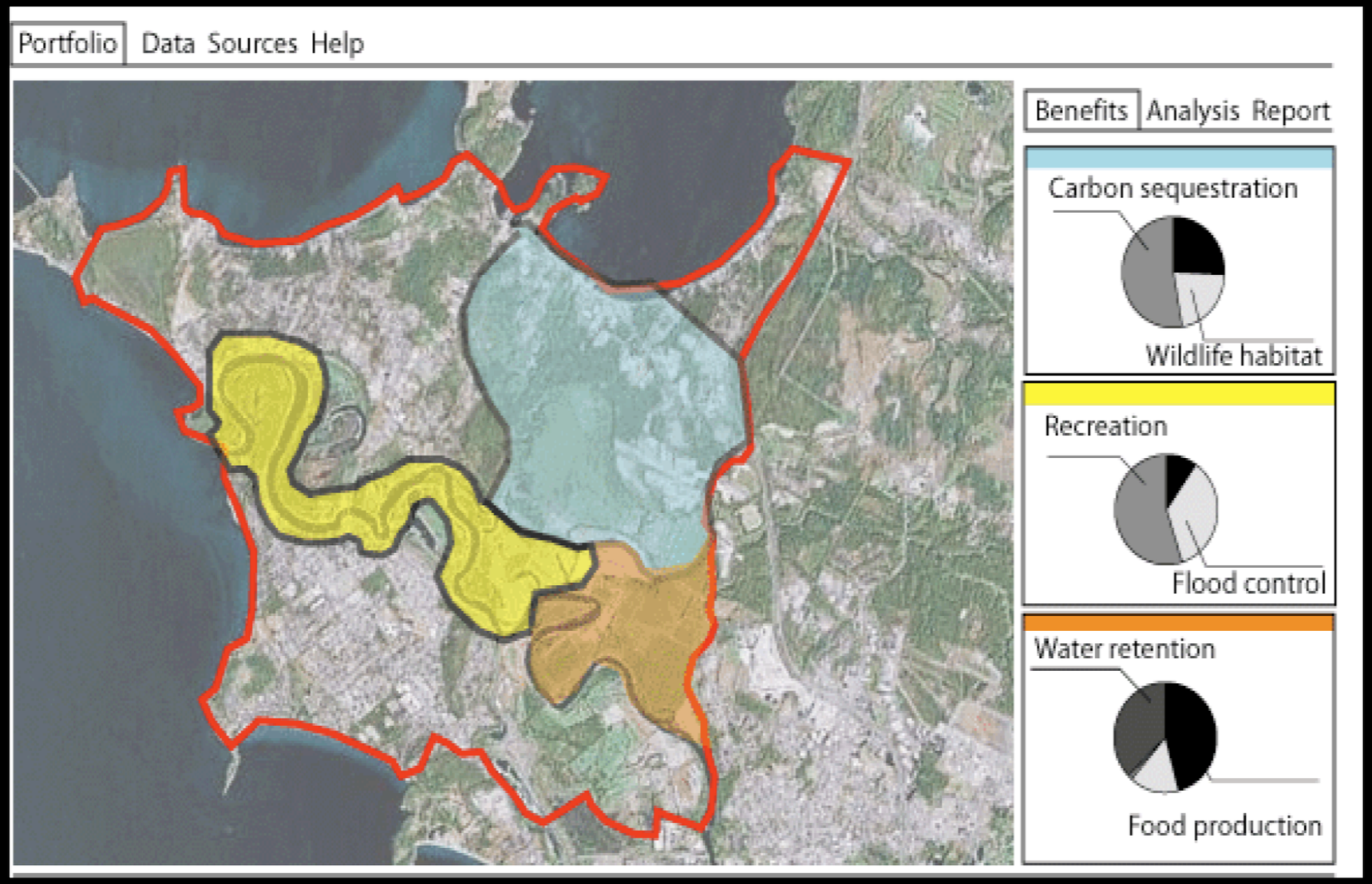


ARIES
ARtificial Intelligence for Ecosystem Services



1. Provisioned

ARIES
ARtificial Intelligence for Ecosystem Services



1. Provisioned
2. Beneficiaries

ARIES early preview

artificial intelligence for ecosystem services

▼ Service: Carbon Storage

Most likely level of Climate Stability provision

The map on the left represent the most likely level of Climate Stability provision in the area. It has been calculated based on probabilistic models. Use the grey button to discover more about all variables and explore potential scenarios.

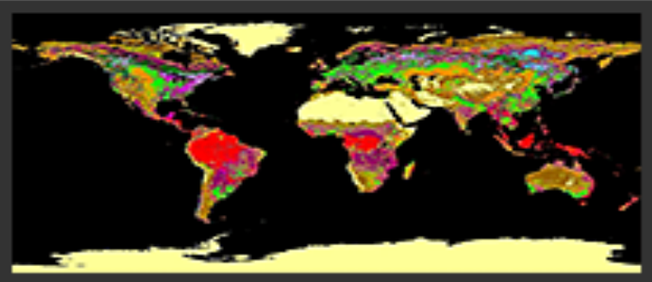
Low Moderate

► Service: Flood Prevention Service

► Service: Soil Retention Service

► Service: Raw Materials

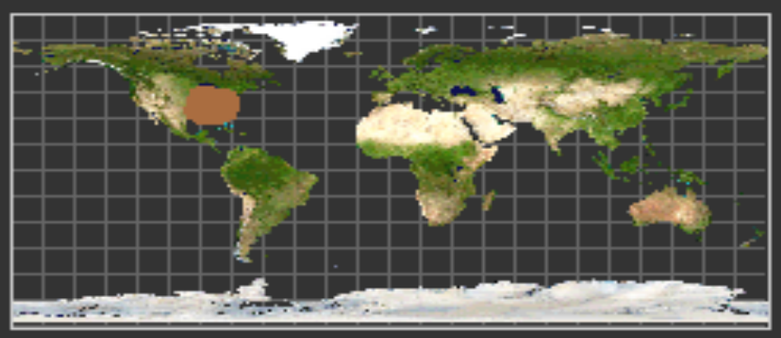
▼ Source Data



Vegetation type

Land cover type can be used as a proxy variable to establish the spatial pattern of provision for different ecosystem services. For example, it relates to vegetation structure and soil permeability.

Source: UMD Global Landcover Facility



Rule engine is idle

http://ecoinformatics.uvm.edu/downloads/AriesDocumentary.mp4

ARIES preview | 3 sources | Next: Scenario analysis and reporting

Thank You

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Thank You

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